Visual Management of Histology Workflow in Real Time and Day-By-Day

Lab Quality Confab 9/29/09
by
Dr. Katja Lehmann

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**Credentials**

- **Dr. Katja Lehmann, Manager Workflow Consulting**
  - 2001 - 2003 Quality Manager European Service Center Heppenheim, Germany
    - Quality control for European Demo and Service Center
    - Implemented SOP's and Process Handbooks
    - Implemented Complaint Management
  - 2003 - 2005 Six Sigma Black Belt Leica North America
    - Implemented Six Sigma in SU North America
    - Designed and Executed Yellow Belt Program
    - Implemented DBS in SU North America
    - Executed 73 kaizen events
    - Coached DBS MBB's
    - Obtained MBB in RCCM and TFTI
    - Coached Policy Deployment for NAM Executive team
  - 3/09 Manager Workflow Consulting, Leica Biosystems Division North America
    - Designed and Implemented LHCS Service
    - Executed 16 Customer events / 5 new lab designs
Ahead there is a bend in the road and you need to slow down and turn to the right, but not a full 90°, more like 60°.

Key questions to ask yourself

? How do you know you are on plan?
? How do you know if you are satisfying our customers needs?
? How do you keep track of increasing workload?
? How do you know what the problems are?
? How do you know actions are being taken?
? How do you know who is accountable?
Purpose of Visual Management

- Drive Results Daily
- Drive Rootcause and Countermeasure in Real Time
- Drive Accountability
- Reduce fire fighting
- Abnormalities Visible
- Solve problems at the source
- Smoother communication among associates

How to get started?

Vision

TODAY
4 Pillars of Successful Visual Management

✓ Managing Key Metrics
✓ Visualization
✓ Problem Solving
✓ Leadership

Managing Key Metrics
Managing Key Metrics

**Metrics should**

- measure what is actionable
- measure what is meaningful
- measure to drive Improvement (Results!)

**Examples**

- Turn Around Time
- Defects / Re-Work
- % of Unstained Slides Used
- Instrument Up\Downtime
- Stock out of Inventory (Control Slides, Consumables, Reagents)
- Safety Incidents
- On Time Delivery (OTD)
- 5S Level
Managing Key Metrics

1. Step: Identify key metrics

- Know what are important goals for your organization -> Develop Laboratory Vision
- Analyze current process performance (Data Analysis, VSM, Process Mapping) to identify which steps in the process you will measure
- Identify Leading and Lagging Indicators for Daily and Weekly/Monthly Metrics

**Tip**

- LESS IS MORE
  - Don’t measure metrics that you are not planning on improving
- If in doubt
  - Pick metrics that you are struggling with to limit the number

2. Step: Define JOP and Goals

- Gather Historical Data to identify Jump Off Point (JOP)
- Define goal (monthly / weekly / daily)

**Tip**

- Lack of historical data
  - Gather data manually for one to two month to define a first JOP
  - Adjust JOP and Goal once more data is available
- Setting goals
  - Improve current performance by at least 20%
  - The more aggressive the goal the more likely your organization will be forced to to improve and implement sustainable processes
Visualization

**Weekly/Monthly Metrics**
- Display in central location
- Update weekly/monthly
- Include historic data (Run-chart, Histogram, etc.)

**Daily Management**
- Display in central location
- Discuss Daily with Employees (Daily Huddle)

**Hour-by-Hour Status**
- Display at Point of Activity
- Check hourly
### Weekly/Monthly Metrics

**Example: “Bowling Chart”**

<table>
<thead>
<tr>
<th>KPI</th>
<th>Target to Improve</th>
<th>2009 YTD</th>
<th>Plan</th>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
<th>MAY</th>
<th>JUN</th>
<th>JUL</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAT</td>
<td>Decrease TAT from 3 days to 1 day by May 2009</td>
<td>3 days</td>
<td>Plan</td>
<td>3.1</td>
<td>2.8</td>
<td>2.3</td>
<td>1.5</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<td></td>
<td>Act</td>
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<td>2</td>
<td>2.3</td>
<td>1.5</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5S</td>
<td>Achieve 5S level by June 2009</td>
<td>0S</td>
<td>Plan</td>
<td>0</td>
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<td>4</td>
<td>4</td>
<td>5</td>
<td>5</td>
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<td>4</td>
<td>5</td>
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</tbody>
</table>

- “Ample function” shows hit or miss in 3 seconds
- All metrics at the same chart

**Example: Run Chart / Histogram**

- “Goal line” shows hit or miss
- One chart per metric
**Daily Management**

- Display in central location
- Display Elements
  - Daily Measures
  - Problem Solving Data
  - Action Plans Countermeasures
- Discuss Daily with Employees (daily Huddle)
  - Meet with supervisor, employees, pathologists
  - “Hand-off” between shifts in person

**Daily Huddle Example**

Topics

- Today's workload
- Today's priorities
- Assign people to special tasks
- Re-Assign employees if somebody is out
- Difficulties occurred yesterday
- Include Rewards if applicable
- Include “fun part” e.g. motivational daily quote
Example Manager’s Dashboard

- Allows for real-time tracking of cases in process
- Daily QA monitoring for Turnaround Time
- Real time monitoring of Pathologist Case Status
- Track cases by Histotechnologist, Cytotechnologist or stage in processing.
Example Manager's Dashboard

Manager's Dashboard displays all cases in the system. Red circle indicates turnaround time is exceeded for these cases.

Example Manager's Dashboard
Daily Display Board Elements

**PRODUCTIVITY**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Root Cause and Countermeasure</th>
<th>Historic Data - Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>hit or miss</td>
<td>Action Plan</td>
<td>Trend</td>
</tr>
</tbody>
</table>

**Productivity (units / 100 direct labor hours)**

- 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
**Example Daily Board**

![Example Daily Board Image]

**Examples**

![Examples Images]
Hour-by-Hour Status

- Scorecard / Productivity Board
- Display at Point of Activity
- Check hourly
- Solve problems right away
- Re-Assign manpower where needed

Scorecard

<table>
<thead>
<tr>
<th>Hour</th>
<th>People</th>
<th>Plan</th>
<th>Actual</th>
<th>Delta</th>
<th>Issues/Comments</th>
<th>Supervisor</th>
<th>Manager</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

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## Productivity Board

<table>
<thead>
<tr>
<th>Name of Laboratory</th>
<th>DAILY RESULTS GROSSING</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE:</td>
<td>AREA:</td>
</tr>
<tr>
<td></td>
<td>AP</td>
</tr>
<tr>
<td>(NOTE: Circle which Area)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th># of Cases</th>
<th>SHIFT #1</th>
<th>SHIFT #2</th>
<th>SHIFT #3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PLAN</td>
<td>ACTUAL</td>
<td>PLAN</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>TOTAL</td>
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<td>000</td>
<td>000</td>
</tr>
</tbody>
</table>

(NOTE: SCRAP AND REWORK NUMBERS NOT INCLUDED IN PRODUCTION NUMBERS ABOVE)

| SCRAP OR REWORK BLOCKS | 000 |

(NOTE: MANPOWER IS THE NUMBER OF FTE's ON THE SHIFT)

| MANPOWER | 111 |

(NOTE: HOURS WORKED IS THE HOURS WORKED BY EACH FTE)

| HOURS WORKED | 888 |

(NOTE: TOTAL HOURS IS MANPOWER x HOURS WORKED)

| TOTAL HOURS | 888 |

(HOURLY PRODUCTIVITY IS TOTAL ACTUAL PRODUCTION / TOTAL HOURS)

| PRODUCTIVITY | 0.0 0.0 0.0 |

ABSENT ASSOCIATES

| DOWNTIME (LIST TIME DOWN AND WHAT EQUIPMENT) |  |

COMMENTS FOR SHIFT

## Visual Management Checklist

- Charts & signs must be visible at a distance.
- Should be directed toward a group, not individuals where appropriate
- Visually communicate a Plan and Actual.
- Involve all employees in the visual management process.
- Do not use visual management as a means to control or punish…Drive to solve problems in a blameless environment.
- Should be understandable…consider the audience.
- Should be “At-a-glance” (think “three-second rule”).
- Should be standardized (over time). Everyone should know what they are looking at in your facility
- A barometer of “health” for a specific area (i.e., the “right” metric to tell you if you are doing well)
- Be Maintained (don’t measure if no one will take action!)
- Have a Process around their use
- Be Actionable by Associates at the level they are used
**Standard Work Daily Management**

1. `ASSIGNED EMPLOYEE(S) UPDATE DM BOARD`
2. `PREPARE NEXT DAYS SCORECARD`
3. `SUPERVISOR AUDITS HOURLY`
4. `ANALYZE RESULTS AND COUNTER-MEASURE`
5. `ASSIGNED EMPLOYEE FILLS OUT SCORECARD at GIVEN TIME INTERVALS`
6. `“Daily Huddle” REVIEW DM BOARD WITH TEAM`

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**Problem Solving**
1. Go To Place of Occurrence First

- Go to the laboratory as the first step in the problem solving process
- Don’t try to solve problems in your office
- Observe the problem where it occurred at the source
2. Check the Real Thing

- Need to see the problem for ourselves and take action
- Someone else’s interpretation is not enough – don’t just rely on reports
- Stay objective and identify the problem

3. Take Temporary Countermeasures Immediately

- Take temporary countermeasures on the spot
  - We must insulate our customer from the problem
  - Even though this addresses symptoms only... We must continue to run our business
4. Find Root Cause \(\rightarrow\) 5. Standardize

- Use 5 Whys or other Problem Solving Techniques to drive to root cause
- Standardize new process to prevent problem from reoccurring
- Follow up to ensure the problem has been solved

Problem Solving Tools

- Cause and Effect Diagrams
- Run Charts
- Six Sigma
- Pareto Charts
- Histograms
- Variation Reduction Kaizen
- 5 Why's
5 Whys – Jefferson Memorial Graph

Why?

Why?

Why?

Why?

Why?

Problem Solving

Differentiate between Symptoms and Systems Issues

- Your child has a fever, is this a symptom or a systems issue?

BE A SYSTEMS THINKER: Understand the Interdependence of everything!
Differentiate between Symptoms and Systems Issues

Focus on:
- What Happened?
  - Tell the story!
- Where it Happened?
  - Give the background!
- When it Happened?
  - Be specific!
- Then go to the How / Why
  - Play Dominos!

This process will help you do systems thinking!

Countermeasure Types

- Short-term Countermeasure
  - The purpose of Countermeasures is to develop actions to quickly get back on target
- Long-term Countermeasure
  - Needed when the short-term countermeasure is not sustainable
  - Tend to address & resolve systemic issues
Leadership

Elements of Rigorous Leadership

- Define the Parameters
- Set People Up to Win
- Uphold the Parameters
Leadership

Define the Parameters

- Set Expectations
- Make it clear what Winning looks like
- Make it clear what Losing looks like
- Only define expectations that you are serious about

Set People Up to Win

- Are they set up with the right resources, people, time, dollars, capital?
- Do People know what you think of their work?
- How do you communicate to them?
- How do you manage with positive expectancy?
Uphold the Parameters

- Inspect what you expect
- React to what you find
- Consistency is critical across the facility
- Apply feedback that is:
  - Immediate
  - Specific
  - Positive and negative
  - Coach to Win
- The daily walk through the laboratory upholds parameters

Applying the Leadership Elements to Delegation

- Delegation Effectively
  - Taps the whole organization
  - Affords managers to coach and not fix
  - Allows managers to be enablers
  - Drive accountability to the whole team
Leadership

Apply Rigorous Leadership by

- Walking the Laboratory
- Holding Stand up Meetings
- Auditing

Leadership

Walk the Laboratory

- Walk the laboratory EVERYDAY
- Schedule time if necessary to ensure that you will walk the laboratory
- Reach ALL areas of the laboratory regularly - don’t just stay on the main isles
- Talk with Employees and Listen
- Act immediately to implement issues that can be resolved short-term
Daily Huddle

- **Why:** Communicate key information to start the shift operations
- **When:** Daily (morning or shortly after shift start for every shift)
- **Duration:** 10 min. max
- **Where:** Standing in the team area
- **Who:** Supervisor, employees, pathologists, etc.

QUESTIONS?